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## REMARKS

Claims 1-20 were pending in the present Application. Claims 1, 3, 5, 9, 10, 12, 13, and 17 have been amended and Claims 4 and 11 canceled, leaving Claims 1-3, 5-10, and 12-20 for further consideration in the present amendment. In response to the Notice of Non-Compliant Amendment, Applicants have amended the claim identifiers to reflect the status of claims 1, 3, 5, 10, 12, 13 and 17 as "Currently Amended" compared with the last entered amendment dated February 16, 2006. Applicants have also made amendment to claim 9 to reflect changes to the text presented in the amendment filed on July 20, 2005, which was the amendment last entered.

Support for the amendments can be found in the originally filed claims as well as Applicants' specification, particularly, paragraphs [0023]-[0026].

Reconsideration and allowance of the claims are respectfully requested in view of the above amendments and the following remarks.

Claim Rejections Under 35 U.S.C. § 102

A. Claims 1-5, 7-13, 16, and 17-20 stand rejected under 35 U.S.C. § 102(b), as allegedly anticipated by U.S. Patent No. 6,319,809 to Chang et al. (hereinafter "Chang"). Applicants respectfully traverse.

To anticipate a claim, a reference must disclose each and every element of the claim. *Lewmar Marine v. Barient Inc.*, 827 F.2d 744, 747, 3 U.S.P.Q.2d 1766 (Fed. Cir. 1987).

Chang fails to anticipate independent Claims 1, 9, and 17 because Chang fails to disclose a process comprising, *inter alia*, exposing the low k dielectric layer to radiation and simultaneously with, prior to, or subsequent to the radiation exposure, exposing the substrate to a process effective to remove the contaminants without causing degradation of the low k dielectric layer, wherein the process is an oxygen free plasma process or combinations of the oxygen free plasma process with at least one of a heat process and a vacuum process

Accordingly, the rejections of Claims 1-5, 7-13, 16 and 17-20 should be withdrawn since Chang fails to disclose all claim elements as is required to maintain a proper 102 rejection. .

B. Claims 1, 2, 5-8, and 17-20 stand rejected under 35 U.S.C. § 102(e), as allegedly anticipated by U.S. Patent No. 6,452,275 and 6,559,045 to Chung (hereinafter "Chung"). Applicants respectfully traverse these rejections.

Chung explicitly discloses exposing dielectric layer to actinic light to increase the molecular weight. An increase in molecular weight would change the dielectric properties of the low k dielectric resulting in degradation.

> The dielectric layer may also optionally be exposed to actinic light, such as UV light, to increase the molecular weight.

(US Patent No. 6,452,275 to Chung, Col. 9, ll. 64-66)

In contrast, Applicants claim a process effective to remove the contaminants without causing degradation of the low k dielectric layer.

Accordingly, the rejections of these claims should be withdrawn.

First Claim Rejection Under 35 U.S.C. § 103(a)

Claim 6 stands rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Sharangpani. Applicants respectfully traverse this rejection.

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a *prima facie* case of obviousness, i.e., that all elements of the invention are disclosed in the prior art. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

As discussed above, Sharangpani is generally directed to curing processes. The curing process generally includes curing monomers that are transformed to a low k constant dielectric material by initiating crosslinking and/or polymerization of the monomers (see Sharangpani, Col. 3,

ll. 1-43). There is no disclosure or suggestion of further exposing the low k material to photons after it is cured.

Accordingly, the rejection of Claim 6 should be withdrawn for at least this reason.

Second Claim Rejection Under 35 U.S.C. § 103(a)

Claims 6, 14, and 15 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Chang. Applicants respectfully traverse.

Applicants respectfully assert that a *prima facie* case of obviousness has not been established against independent Claims 1 or 9 because Chang fails to teach or suggest a drying process comprising, *inter alia*, removing air from the process chamber prior to exposing the low k dielectric layer to photons or radiation as claimed by Applicants. Rather, Chang teaches and suggests that the irradiation is performed in nitrogen or ozone rich environment. As previously discussed, the use of the nitrogen rich or ozone rich environment does not equate to a process that removes air from the process chamber prior to exposing the low k dielectric layer to photons or radiation. The presence of air can detrimentally affect the dielectric material during radiation to photon exposure. Moreover, the fact that Chang teaches and suggests the use of ozone clearly indicates that Chang fails to appreciate the advantages of removing air.

It is also noted that Chang teaches the use of ultraviolet irradiation as a pre-treatment to avoid or reduce subsequent via poisoning (see Chang, at Col. 1, ll. 52-64, Col. 3, ll. 61-62, and Col. 6, ll. 10, 62-64). The Applicants teach "drying" and "contamination-removal" methods that dry and/or remove contaminants after the contaminants are introduced into the low k material, while not degrading the low k material. As such, the processes are markedly different from one another and occur at different stages in the integrated circuit manufacturing process. Also, it is noteworthy that degradation of the low k material will manifest itself in increased capacitance, while via poisoning usually manifests itself as increased resistance.

As all elements of independent Claims 1 and 9 have not been taught, these claims are patentable over Chang. Given that Claims 6, 14 and 15 each further limit and ultimately depend

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from one of these independent claims, they too are patentable. Accordingly, the rejection of Claims 6, 14 and 15 are requested to be withdrawn.

Claim Rejection Under 35 U.S.C. § 112, Second Paragraph

Claim 17 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite because the term "and/or" includes alternative language. Claim 17 has been amended, which has now rendered the rejection moot. Accordingly, Applicants request the Examiner to withdraw the rejection of Claim 17.

It is believed that the foregoing amendments and remarks fully comply with the Office Action mailed November 17, 2005 and that the claims herein should now be allowable to Applicants. Further, Applicants believe that the amendments and remarks fully comply with the Notices of Non-Compliant Amendment mailed May 2, 2006 and July 26, 2006, respectively. Accordingly, reconsideration and allowance are requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130 maintained by Applicants' attorneys.

Respectfully submitted,

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